

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A tactile sensor assembly comprising:
a force transmission member; and
a sensor comprising a capacitive sensor;
wherein the force transmission member includes a plurality of deformable projections ~~adapted~~ operative to engage and transmit an applied force to the capacitive sensor, the capacitive sensor being ~~adapted~~ operative to measure a capacitance value formed when the deformable projections are deformed by engagement with the capacitive sensor when a force is applied to the transmission member, and to output a signal indicative thereof.
2. (Currently Amended) An assembly as claimed in claim 1 ~~or 2~~, wherein the area of engagement between the deformable projections and the capacitive sensor increases in accordance with increasing applied force.
3. (Currently Amended) An assembly as claimed in claim 1, wherein the force transmission member is ~~adapted~~ operative to transmit forces applied on an object to the sensor.
4. (Currently Amended) An assembly as claimed in claim 1, ~~2 or 3~~, wherein the assembly is adapted for use in surgical procedures.
5. (Original) An assembly as claimed in claim 4, wherein the assembly is adapted for use in minimal access surgery (MAS) procedures.

6. (Currently Amended) An assembly as claimed in ~~any preceding~~ claim 1, wherein the projections are tapered.

7. (Original) An assembly as claimed in claim 6, wherein the projections are conical.

8. (Currently Amended) An assembly as claimed in ~~any one of claims 1 to 5~~ claim 1, wherein the projections are substantially uniform in cross-section.

9. (Original) An assembly as claimed in claim 8, wherein the projections are cylindrical.

10. (Currently Amended) An assembly as claimed in ~~any preceding~~ claim 1, wherein the sensor is ~~adapted~~ operative to output an electrical signal.

11. (Currently Amended) An assembly as claimed in ~~any preceding~~ claim 1, wherein the sensor is ~~adapted~~ operative to measure at least one of compression and deflection of the projections.

12. (Currently Amended) An assembly as claimed in ~~any preceding~~ claim 1, wherein the sensor is ~~adapted~~ operative to output data indicative of a degree of deformation of at least one of the projections, to facilitate generation of an image of said at least one deformed projection.

13. (Currently Amended) An assembly as claimed in ~~any one of claims 1 to 11~~ claim 1, wherein the sensor is ~~adapted~~ operative to output data indicative of a force between the object and the sensor.

14. (Currently Amended) An assembly as claimed in claim 13, wherein the sensor is ~~adapted~~ operative to generate voltage data corresponding to the capacitance between the projections and the sensor, and to output data indicative of a corresponding force.

15. (Currently Amended) An assembly as claimed in claim 13, wherein the sensor is ~~adapted~~ operative to generate voltage data corresponding to the capacitance between the projections and the sensor, and to output voltage data for subsequent conversion by a processor into data indicating the force exerted on the sensor through the projections.

16. (Currently Amended) An assembly as claimed in ~~any preceding~~ claim 1, further comprising a processor for receiving data from the sensor.

17. (Currently Amended) An assembly as claimed in claim 16, ~~when dependent on claim 12,~~ wherein the sensor is operative to output data indicative of a degree of deformation of at least one of the projections, to facilitate generation of an image of said at least one deformed projection, and wherein the processor is ~~adapted~~ operative to determine a distribution of force between the projections and the sensor.

18. (Currently Amended) An assembly as claimed in claim 16, ~~when dependent upon claim 13,~~ wherein the sensor is operative to output data indicative of a force between the object and the sensor, and wherein the processor is ~~adapted~~ operative to process the data and to generate an output indicative of a distribution of force between the projections and the object.

19. (Currently Amended) An assembly as claimed in ~~any one of claims 16 to 18~~ claim 16, wherein the processor includes software ~~adapted~~ operative to measure deformation of the projections relative to a starting configuration, to determine the force exerted between the object and the sensor.

20. (Currently Amended) An assembly as claimed in ~~any preceding claim 1,~~ further comprising a display coupled to the sensor, for displaying an image of the projections.

21. (Original) An assembly as claimed in claim 20, wherein the display is directly coupled to the sensor by a data link cable.

22. (Currently Amended) An assembly as claimed in claim 20, further including a transmitter and receiver for transmitting data between the display and the sensor, such that the display is indirectly coupled to the sensor.

23. (Currently Amended) An assembly as claimed in ~~any preceding claim 1,~~ wherein the force transmission member includes at least 100 projections per square centimetre.

24. (Currently Amended) An assembly as claimed in ~~any preceding~~ claim 1, wherein the force transmission member is formed of an elastically deformable material.

25. (Currently Amended) A palpation assembly comprising:
a tactile sensor assembly including a force transmission member and a sensor comprising a capacitive sensor, wherein the force transmission member includes a plurality of deformable projections for transmitting an applied force to the capacitive sensor, the capacitive sensor being ~~adapted~~ operative to measure a capacitance value formed when the deformable projections are deformed by engagement with the capacitive sensor when a force is applied to the transmission member, and to output a signal indicative thereof; and
at least one palpation member for palpating the object.

26. (Currently Amended) A palpation assembly as claimed in claim 25, wherein the palpation assembly is ~~adapted~~ operative to palpate the object between the palpation member and the force transmission member.

27. (Currently Amended) A palpation assembly as claimed in ~~either of claims 25 or 26~~ claim 25, wherein the palpation member comprises an arm adapted to exert a force on the object to palpate the object.

28. (Currently Amended) A palpation assembly as claimed in ~~any one of claims 25 to 27~~ claim 25, wherein the palpation member is moveably mounted relative to the force

transmission member and ~~adapted for movement~~ operative to move both towards and away from the sensor and in a lateral plane relative to the sensor.

29. (Currently Amended) A palpation assembly as claimed in ~~any one of claims 25 to 28~~ claim 25, wherein the palpation member and the force transmission member are independently moveable relative to each other.

30. (Canceled)

31. (Currently Amended) A tactile probe comprising:
a tactile sensor assembly adapted for movement with respect to an object, the tactile sensor assembly including a force transmission member and a sensor comprising a capacitive sensor, wherein the force transmission member includes a plurality of deformable projections for transmitting an applied force to the capacitive sensor, the capacitive sensor being ~~adapted~~ operative to measure a capacitance value formed when the deformable projections are deformed by engagement with the capacitive sensor when a force is applied to the transmission member, and to output a signal indicative thereof.

32. (Canceled)

33. (Original) A method of detecting tactile properties of an object, the method comprising the steps of:

providing a tactile sensor assembly comprising a force transmission member and a sensor comprising a capacitive sensor, the force transmission member having a plurality of deformable projections for transmitting an applied force to the capacitive sensor;

locating the deformable projections of the force transmission member in contact with the object;

moving at least one of the object and the force transmission member relative to the other to compress at least one of the deformable projections, to transmit a force to the sensor;

measuring a capacitance value between the compressed deformable projection and the sensor; and

outputting a signal from the sensor indicative of the applied force.

34. (Currently Amended) A method as claimed in claim 33, further comprising measuring deformation of the projections to determine tactile properties of the object.

35. (Currently Amended) A method as claimed in ~~either of claims 33 or 34~~ claim 33, further comprising measuring deflection of the projections.

36. (Currently Amended) A method as claimed in ~~any one of claims 33 to 35~~ claim 33, further comprising palpating the object to exert a force on the sensor.

37. (Currently Amended) A method as claimed in ~~any one of claims 33 to 35~~ claim 33, further comprising bringing the force transmission member into contact with the object and moving the force transmission member relative to the object to transmit a force to the sensor.

38. (Currently Amended) A method as claimed in ~~any one of claims 35 to 39~~ claim 35, further comprising displaying an image of the projections.

39. (Original) A method of palpating an object, the method comprising the steps of:

providing a tactile sensor assembly comprising a force transmission member and a sensor comprising a capacitive sensor, the force transmission member having a plurality of deformable projections for transmitting an applied force to the sensor;

locating the force transmission member in contact with the object;

palpating the object to compress at least one of the projections, to transmit a force to the sensor;

measuring a capacitance value between the compressed deformable projection and the sensor; and

outputting a signal from the sensor indicative of the applied force.